REMARKS

Claims 13, 15 and 16 currently appear in this application. The Office Action of July 6, 2005, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicants respectfully request favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Rejections under 35 U.S.C. 112

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The present amendment cancels claim 14, so this rejection is now moot.

Art Rejections

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. in view of Sato et al. The Examiner's position is that it would have been obvious to one skilled in the art to modify the symmetric pentamethine benzoindolenic dye having a PF_6^- anion as the counterion, such as compounds 14 and 15 of Inagaki by adding a halogen as a substituent at the meso position of the pentamethine chain

shown in formula b in column 3 of Inagaki. The Examiner alleges that this obviousness is based upon the disclosure of equivalence within Inagaki and by using different N-substituents on the benzoindolenic moieties based upon the teaching of Sato with a reasonable expectation of achieving the increases in solubility, stability and the like, as this is attributed to the asymmetry in the N-substituents.

This rejection is respectfully traversed. Claim 13 has been amended to recite that the claimed optical recording medium has a reflection factor of 65% or more, and that X^- in Formula 1 is not I^-, Br^-, Cl^-, ClO_4^-, BF_4^- or SbF_6^- when R_3 is hydrogen. Support for a reflection factor of 65% or more can be found in the specification as filed at page 14, lines 16-17. The amendment with respect to X^- in Formula 1 is effected to distinguish the cyanine dye compounds represented by Formula 1 from the compound disclosed in the cited art.

Neither Inagaki nor Sato discloses a cyanine dye represented in Formula 1 in claim 13. The Examiner maintains his position that it would have been obvious to one skilled in the art to modify compounds 14 and 15 of Inagaki into asymmetric pentamethine dyes as represented by Formula 1 in claim 13 based upon the teaching of Sato with a reasonable expectation of achieving an increase in solubility, stability and the like, as this is attributed to the asymmetry in the N-

substituents. However, it should be noted that Sato did not actually confirm the increased solubility, in particular the solubility in 2,2,3,3-tetrafluoro-1-propanol (TPP). Sato only states that they found that **the stability of indole type cyanine dyes to light and heat can be enhanced** by making the N-substituents asymmetrical (column 2, lines 9-15). With respect to the solubility, Sato **assumes** that these characteristics of the dye compounds provide high solubility in alcoholic solvents, high storage stability, and the like (Column 4, lines 28-31). It should be noted that "such characteristics" mean the definition of R_5 and R_6 in formulas (I) and (II) of Sato. In short, Sato merely assumes that the solubility of the dyes represented by formulas (I) and (II) would increase when R_5 and R_6 in formulas (I) and (II) are those as defined. There is nothing in Sato that states that asymmetric N-substituents generally increase the solubility of the dye.

On the other hand, the invention disclosed in Inagaki was made to "provide optical information recording media comprising a cyanine dye which can form the recording layer of an optical information recording medium capable of maintaining adequate recording characteristics over a long period and thus has excellent stability, and moreover is free from danger of explosion and has **good solubility in organic**

solvents (please see column 1, line 65 to column 2, line 4). In order to attain this object, Inagaki proposes a cyanine dye as represented by formula (I), *i.e.*, an **unsymmetrical** cyanine dye. Symmetry is believed to be an essential feature of Inagaki's dye. In addition, it is considered that the proposed symmetrical cyanine dye in Inagaki has good solubility in organic solvents, although no data were presented in Inagaki. Given this situation, it is not understood how one skilled in the art would be motivated for further improve the solubility of the proposed symmetrical cyanine dye by daring to destroy the symmetry of the dye in accordance with the teaching in Sato.

Inagaki and Sato took different approaches to providing stable cyanine dyes. Inagaki tried to find appropriate substituents of a symmetrical cyanine dye, while Sato tried to discover appropriate substituents for an asymmetrical cyanine dye. Therefore, it is respectfully submitted that one skilled in the art would not be motivated to apply substituents suitable for either one to another with reasonable expectation of success.

While both Inagaki and Sato refer to the solubility of the dyes disclosed therein, they refer only to the solubility without supporting data. As noted above, neither of them actually confirms the improved solubility of their

respective dyes. In particular, Sato only assumes that "such characteristics of the dye compounds provide high **solubility** in alcoholic solvents, high storage stability **and the like**" (column 4, lines 28-31). It would have been quite difficult to arrive at the disclosure in Sato that asymmetry is generally effective in improving the solubility of cyanine dyes.

In contrast thereto, Table 2 of the present application shows that the solubility in TFP of the cyanine dyes of the present invention is about 3 to 8 times higher than that of control (symmetrical cyanine dyes). It is believed that this excellent solubility is quite unexpected.

The fact that Sato uses a 790 nm laser and Morishima uses a 780 nm laser is immaterial in view of the differences between the claimed cyanine dyes and those disclosed in the cited patents.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima in view of Inagaki and/or Saito combined with Sato. Morishima is said to teach the use of cyanine dyes embraced by the formula (B-1) in column 26 where the linking group is a pentamethine linkage optionally substituted with alkyl or halogen moieties and the Z moieties may be naphthalene residues and the N-substituents may be the same or different. The Examiner's position is that it would

have been obvious to modify the dyes B-25 and B-26 of Morishima by using PF_6^- as the counterion as taught by Inagaki and/or Saito and suing different N-substituents on the benzoindolenic moieties based upon the teaching of Sato with a reasonable expectation of achieving the increases in solubility, stability, and the like, as this is attributed to the asymmetry in the N-substituents.

This rejection is respectfully traversed. As stated above, Sato merely assumes that the solubility of the dyes represented by formula (I) and (II) would increase when R_5 and R_6 in the formulas are those as defined. Sato never teaches that asymmetric N-substituents generally increase the solubility of the dyes.

On the other hand, Morishima proposed symmetrical cyanine dyes such as B-25 and B-26 as preferable to asymmetrical cyanine dyes because a cyanine dye having the formula (B-II) is disclosed as being preferable to a cyanine dye having the formula (B-1), as shown in column 26. Therefore, it would be quite unreasonable to one skilled in the art to modify the preferred cyanine dyes B-25 and B-26 in Morishima to produce not-preferred dyes using different N-substituents based upon the teachings of Sato.

Furthermore, it should be noted that the PF_6^- anion is used as the counterion of a symmetrical cyanine dye in

Inagaki. It is therefore respectfully submitted that one skilled in the art would not have been motivated to use PF_6^- anions as the counterion when the dyes B-25 and B-26 of Morishima are once modified using different N-substituents.

Saito disclose a cyanine dye having PF_6^- anion as the counterion. However, PF_6^- anion is selected to provide a higher thermal decomposition start temperature in Saito (column 22, lines 20-25). Again, it should be noted that the dyes B-25 and B-26 are the preferred dyes in Morishima, and they have ClO_4^- as the counterion.
Therefore, it would not be reasonable to one skilled in the art to modify the preferred cyanine dyes B-25 and B-26 in Morishima to less preferred dyes using the PF_6^- anion as the counterion based upon the teachings of Saito.

The cyanine dyes claimed herein have excellent solubility in TFP, which is about three to eight times higher than the solubility of the control (symmetrical) cyanine dyes. This excellent solubility of the claimed cyanine dyes is neither disclosed nor suggested by any of Inagaki, Sato, Morishima, and Saito, and it is believed to be quite unexpected.

Furthermore, the herein claimed optical recording medium has a reflection factor of 65% or more. Such a high reflection factor is neither disclosed nor suggested by any

one of Inagaki, Sato, Morishima, or Saito. This feature is believed to be unexpected in light of the cited art.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima in view of Inagaki and/or Saito combined with Sato further in view of Ootaguro or Yanagisawa.

This rejection is respectfully traversed. As noted above, the combination of Morishima in view of Inagaki and/or Saito combined with Sato does note render the present invention obvious. Ootaguro and Yanagisawa only add some types of stabilizers. Since claim 14, directed to specific stabilizers, has been cancelled by the present amendment, it is respectfully submitted that claims 13-16 are not obvious in light of these cited patents.

Claims 13-16 are rejected under 35 U.S.C. 103(a 0 as being unpatentable over Inagaki in view of Sato, further in view of Hamer, F.M., "The Cyanine Dyes and Related Compounds" (1964) pp. 200-243 and Dickerson.

This rejection is respectfully traversed. Hamer discloses a process for preparing asymmetric cyanine dyes, but does not disclose a cyanine dye as claimed in claim 13. Furthermore, it should be noted that Hamer was published in 1964, and at that time there were no optical recording media. There is no reason to expect that Hamer could have predicted a

dye for optical recording media, or that the cyanine dyes disclosed therein would have been useful for optical recording media.

Dickerson merely discloses a process for replacing the meso-position of penta-methine cyanine dyes. Dickerson, however, neither teaches nor suggests a process for producing a cyanine dye as defined in claim 13. There is nothing in Dickerson regarding optical recording media, and it is respectfully submitted that Dickerson has nothing at all to do with the herein claimed invention.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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